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		DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=ADJ	
☐	L10	L9 and (select or selecting or selector)	12
☐	L9	19991215	12
☐	L8	(data or packet) near8 (priority near5 (indicator or flag)) near8 (select or selector)	21
☐	L7	L6 NOT l5	0
☐	L6	l2 and bitstream	4
☐	L5	L4 and bitstream	4
☐	L4	L2 and video	23
☐	L3	L2 and (object adj2 media)	0
☐	L2	19991215	104
☐	L1	(data or packet) near8 (priority near5 level) near8 (select or selector)	166

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		DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=ADJ	
☐	L16	L14 or l13	4
☐	L15	L14 or l13	4
☐	L14	L12 and l11	2
☐	L13	L12 and l10	2
☐	L12	(client or customer) near5 control	25221
☐	L11	19991215	26
☐	L10	19991215	23
☐	L9	L8 and l7	0
☐	L8	network near8 (((differential or diff) adj service) or diff-serv or (diff serve))	123
☐	L7	(multimedia near5 transmission) near8 (priority or prioritization or QoS or QOS)	76
☐	L6	L3 and (control request)	1
☐	L5	L3and priority	0
☐	L4	L3and prioritization	0
☐	L3	19991215	104
☐	L2	(video adj3 agent) or (video transmission agent)	206
☐	L1	(video adj3 agent) or VTA	1608

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L16: Entry 2 of 4 File: USPT Aug 26, 2003

DOCUMENT-IDENTIFIER: US 6611875 B1
TITLE: Control system for high speed rule processors

Application Filing Date (1):
19990430

Brief Summary Text (9):
Quality of Service or QoS is an idea that transmission rates, error rates, and other characteristics can be measured, improved, controlled and, to some extent, guaranteed in advance. QoS can be measured and guaranteed in terms of the average delay in a gateway, the variation in delay in a group of cells, cell losses, and transmission error rate. QoS is of particular concern for the continuous transmission of high-bandwidth video and multimedia information. For example, packets from a high-paying commercial customer may receive a higher grade of service than packets from a low-paying customer. Similarly, packets from a real-time video or audio streaming application may receive more prompt service than packets from a large file transfer operation.

Detailed Description Text (2):
A control system for high speed rule processors for performing high-speed packet processing is disclosed. In the following description, for purposes of explanation, specific nomenclature is set forth to provide a thorough understanding of the present invention. However, it will be apparent to one skilled in the art that these specific details are not required in order to practice the present invention. For example, the present invention has been described with reference to an embodiment within a gateway that couples a local area network to the global Internet. However, the same packet-processing engine can easily be used in other applications such as general-purpose routers and the accounting systems of Internet Service Providers (ISP) that monitor and control the network usage of various ISP customers. Furthermore, the control processing teachings of the present invention have been disclosed with reference to network address translation, firewall protection, quality of service, IP routing, and/or load balancing tasks. However, other types of packet processing tasks may also be implemented.

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L21: Entry 2 of 2 File: PGPB Jun 26, 2003

DOCUMENT-IDENTIFIER: US 20030118096 A1
TITLE: Method and structure for scalability type selection in digital video

Summary of Invention Paragraph:
[0006] The general concept of SNR scalability is shown in FIG. 1 where enhancement layers added to the base layer provide a resulting frame with less distortions and artifacts. Techniques for SNR scalability can be based on the video coding standards [ITU-T Recommendation H.263 Video Coding for Low Bitrate Communication, January 1998], [D. Wilson and M. Ghanbari. Optimization of two-layer SNR Scalability for MPEG-2 Video. Proceedings of the International Conference on Acoustics, Speech, and Signal Processing, Vol. 4, Pages 2637-2640. IEEE 1997], or may be outside of the standards [L. P. Kondi. Low Bitrate SNR Scalable Video Coding and Transmission. Ph.D. Thesis, Northwestern University, December 1999], [J. DeLameillieure. Rate-distortion Optimal Thresholding in SNR Scalability Based on 2D Dynamic Programming. Proc. SPIE Conf. On Visual Communications and Image Processing, Vol. 2952, pages 689-698. SPIE 1996]. Within the standards, SNR scalability is achieved by re-encoding the difference (error) image between the source and transmitted frames. This error is re-quantized and re-encoded in an enhancement layer. In MPEG-4 a second method referred to as Fine Granularity Scalability (FGS) can be used to generate SNR enhancement layers. A technique for SNR scalability that is beyond the scope of the standards has been presented in [L. P. Kondi. Low Bitrate SNR Scalable Video Coding and Transmission. Ph.D. Thesis, Northwestern University, December 1999] and is based on a hybrid form of both spectral selection and successive approximation introduced in progressive JPEG. Here SNR scalability is accomplished by partitioning the quantized data into three layers. SNR scalability in MPEG-2 has been considered in [D. Wilson and M. Ghanbari. Optimization of two-layer SNR Scalability for MPEG-2 Video. Proceedings of the International Conference on Acoustics, Speech, and Signal Processing, Vol. 4, Pages 2637-2640. IEEE 1997] where a technique for optimization of SNR scalability at bitrates of 2 Mbps is presented. Within H.263 Lee et. al. in [B. R. Lee, K. K. Park, and J. J. Hwang. H.263-based SNR Scalable Video Codec. IEEE Trans. Consumer Electronics, Vol. 43, pages 614-622, September 1997] formulate a two-layer SNR scalable video codec with the enhancement layer being quantized based on the human visual system (HVS). Finally, optimization techniques have also been presented for use with SNR scalability. In [J. DeLameillieure. Rate-distortion Optimal Thresholding in SNR Scalability Based on 2D Dynamic Programming. Proc. SPIE Conf. On Visual Communications and Image Processing, Vol. 2952, pages 689-698. SPIE 1996] DeLameillieure formulates SNR scalability based on an optimal thresholding of the DCT coefficients using 2-dimensional dynamic programming. While many techniques exist for achieving SNR scalability they are limited in that they only consider SNR scalability.

CLAIMS:

16. The structure of claim 15, wherein a metric is operable to select the one or more SNR enhanced frames and the one or more temporal enhancement frames, said metric comprising: within an enhancement layer of the one or more enhancement layers, if a frame i is a current frame encoded in a previous layer, and p.sub.p(i) is the previously coded frame in that layer, the metric of the frame i, F (i), is

formulated asF(i)=.alpha.F.sub.M(p.sub.p(i),i)+.beta.F.sub.s(p.sub.p(i),i)-.lambda.F- .sub.SNR(i)+.gamma.F.sub.Rwhere F.sub.M(p.sub.p(i),i) is a motion function, F.sub.s(p.sub.p(i),i) is a frame separation function, F.sub.SNR(i) is an SNR visual quality function, F.sub.R is a bitrate service function, and .alpha., .beta., .lambda., and .gamma. are the corresponding coefficient weights of one or more of the motion function, the frame separation function, the visual quality gain with the SNR scalability function, and the bitrate of the enhancement layer function.

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L5: Entry 1 of 4 File: USPT Mar 17, 1998

DOCUMENT-IDENTIFIER: US 5729649 A
TITLE: Methods and apparatus for recording data on a digital storage medium in a manner that facilitates the reading back of data during trick play operation

Abstract Text (1):
A digital video tape recorder ("VTR") that selects data useful for generating images during trick playback operation and records the data in trick play tape segments arranged on a tape to form fast scan tracks and multi-speed playback tracks. Each fast scan track comprises trick play tape segments located on a diagonal, relative to the length of the tape, of the same angle as the angle at which the heads of a VTR are expected to pass over the tape during trick play operation at a specific speed and direction of operation. Each multi-speed playback track comprises a plurality of trick play tape segments arranged parallel to the length of the tape. Data which is used for at least one mode of trick play operation is recorded in each trick play tape segment. Each fast scan track and multi-speed track crosses multiple normal play tracks. During playback at a wide variety of speeds and directions, the heads pass over enough trick play segments of the multi-speed playback track to generate recognizable images during trick play operation. Data is recorded in each trick play segment in a manner that optimizes the amount of data that can be routinely recovered during trick playback operation despite tracking errors.

Application Filing Date (1):
19960905

Brief Summary Text (2):
The present invention is directed to digital video recording devices and, more particularly, to digital video recorders such as video tape recorders ("VTRs") capable of recording and/or reproducing recorded video images, stored in the form of compressed digital data, for use during fast forward, search, and reverse modes of video recorder playback operation.

Brief Summary Text (4):
A VTR can receive and store images (and sounds) received as signals from various sources, for example, a television tuner, an antenna or a cable. The VTR stores the received signal information, i.e. the data, by recording the data on a magnetic tape, such as a video cassette tape. The VTR can also reproduce images (and sounds) that are stored on a tape as data by reading the data on the tape and generating a signal from the data which can then be provided to a display device such as a television monitor.

Brief Summary Text (6):
VTR systems for recording and reproducing analog video signals are well known in the art. Such systems commonly use rotary head, helical scan recording methods to record data on a tape. In such systems, record/playback heads are mounted on a rotary head cylinder. The rotary head cylinder is inclined relative to the lengthwise portion of a magnetic tape which surrounds the rotary head cylinder for approximately 180.degree..

Brief Summary Text (7):
During normal operation of such video recording devices, the tape moves in a lengthwise direction while the record/playback heads rotate along with the inclined rotary head cylinder in a circular direction. As the record/playback heads rotate with the head cylinder they contact the moving tape in a manner which permits the recording or reading of data from the tape along evenly spaced tracks located diagonally relative to the length of the tape. A servo mechanism is used to control head positioning relative to the tape's position to insure that the heads contact the tape along the diagonals which form each track of data.

Brief Summary Text (8):
FIG. 1(a) is a top view of a conventional two head video recording system. As illustrated in FIG. 1(a), first and second record/playback heads HA 2 and HB 3 are mounted opposite each other on a rotary head cylinder 4. To reduce crosstalk between adjacent tracks written by heads HA 2 and HB 3, the heads are of mutually different azimuth angles.

Brief Summary Text (17):
As FIG. 1(c) shows, during fast forward playback and other trick play modes of operation where the tape moves at a speed faster than the standard tape speed, it will not be possible for a two head video tape recorder to read all the data contained in each track because there will be areas of track that the heads do not pass over at all. The amount of track that is covered by the heads when the tape speed exceeds the standard tape speed is only a fraction of the total track area with the track area covered being directly proportional to the ratio of the standard tape speed to the actual tape speed. For example, in a two head VTR system, during 3.times. playback operation, the heads will pass over approximately 1/3 of the tape area comprising the recorded tracks which are used during standard playback operation. At 9.times. playback, the heads will pass over approximately 1/9 of the tape area comprising the recorded tracks.

Brief Summary Text (32):
The digital representation of images, especially moving images with accompanying sound, requires a high digital data rate. Thus, digital television signals require a high data rate. High Definition Television ("HDTV") which include systems capable of displaying higher resolution images with greater clarity than are possible with the current National Television Systems Committee (NTSC) standard, will require an even higher digital data rate to represent video images than is required to digitally represent images of a similar quality to those transmitted in accordance with the current NTSC standard.

Brief Summary Text (36):
In accordance with the MPEG standard, analog video signals are digitized, matrixed and filtered to produce an internal format used for the compression process. The compression process performs compression using the MPEG compression algorithm.

Brief Summary Text (37):
In summary, the MPEG compression operations that are implemented in the compression process include motion compensated predictive coding and adaptive Discrete Cosine Transform (DCT) quantization. MPEG utilizes data structures known as frames. A frame contains picture information and defines one complete video picture. For example, a frame of video can consist of an array of luminance pixels (Y) and two arrays of chrominance pixels (Cr, Cb).

Brief Summary Text (44):
In accordance with the MPEG proposal, after the analog video signals are digitized, the digital data is organized into macroblocks. A macroblock is the unit of motion compensation and adaptive quantization. A number of macroblocks comprise a frame. Each macroblock defines a predetermined spatial region in a picture, and contains luminance and chrominance information.